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EXAMINER

JONES, HUGH M

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HOWARD CHARLES DUNCAN MATTSON, DOUGLAS
JOSEPH KING, MICHAEL JOHN GIBBENS, and YANONG ZHU¹

Appeal 2017-003497
Application 14/216,073
Technology Center 2100

Before ROBERT E. NAPPI, JOHN P. PINKERTON, and
ALEX S. YAP, *Administrative Patent Judges*.

NAPPI, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the final rejection of claims 1 through 23. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

INVENTION

The invention is directed to a method of populating a data structure associated with a CAD model. *See* Abstract of Appellants' Specification.

Claim 1 is illustrative of the invention and is reproduced below.

¹ Applicant is Siemens Product Lifecycle Management Software Inc.

1. A method performed by a data processing system, comprising:
receiving a CAD model including a plurality of input features;
initializing a data structure representing multi-level structures in the CAD model;
identifying at least two equal groups of the plurality of input features;
applying a single-level structure recognition process on the groups of features to produce detected structures;
populating the data structure according to the detected structures, wherein the data structure includes leaf nodes representing input features, intermediate nodes representing structures of the input features, and a top-level node identifying a top-level structure of intermediate-node structures discovered in the CAD model; and
storing the data structure as associated with the CAD model.

REJECTIONS AT ISSUE

The Examiner has rejected claims 1 through 23 under 35 U.S.C. § 101 being directed to non-statutory subject matter. Final Action 2.

The Examiner has rejected claims 1 through 23 under 35 U.S.C. § 102(a) as anticipated by Dinesh Shikhare et al., *Compression of Large 3D Engineering Models using Automatic Discovery of Repeating Geometric Features*, VMV 2001 233–240 (2001) (“Shikhare”). Final Action 4–8.

ISSUES

Rejection under 35 U.S.C. § 101

Appellants’ argue on pages 17 through 30 of the Appeal Brief and pages 10 through 33 of the Reply Brief, that the Examiner’s rejection of

claims 1 through 7² under 35 U.S.C. § 101 is in error. The issues raised by these arguments are:

- 1) Did the Examiner err in finding the claims are directed to an abstract concept?
- 2) Did the Examiner err in finding that the claims do not recite an inventive concept which transforms the abstract algorithm into a patent eligible invention?

Appellants' arguments directed to claims 8 through 14 and 22 on page 31 through 32 of the Appeal Brief present the same issues as discussed with respect to claim 1.

Appellants' arguments directed to claims 15 through 20 and 23 on page 33 through 34 of the Appeal Brief present the same issues as discussed with respect to claim 1.

Rejection under 35 U.S.C. § 102

Appellants present several arguments on pages 10 through 14 of the Appeal Brief and pages 3 through 8 of the Reply Brief directed to the Examiner's rejection of independent claims 1, 8, and 15. The dispositive issue raised by these arguments is: Did the Examiner err in finding that Shikhare teaches populating a data structure according to the detected structures, wherein the data structure includes leaf nodes representing input features, intermediate

² Appellants did not list claim 21, which is also rejected by the Examiner and depends on claim 1. We assume Appellants intend for the discussions in these pages to apply also to claim 21.

nodes representing structures of the input features, and a top-level node identifying a top-level structure of intermediate-node structures discovered in the CAD mode, as recited in each of independent claims 1, 8, and 15?

ANALYSIS

We have reviewed Appellants' arguments in the Briefs, the Examiner's rejection, and the Examiner's response to Appellants' arguments. Appellants' arguments have not persuaded us of error in the Examiner's rejection of claims 1 through 23 as directed to non-statutory subject matter. However, Appellants' arguments have persuaded us of error in the Examiner's anticipation rejection of claims 1 through 23.

Rejection of Claims 1 through 23 under 35 U.S.C. § 101

Appellants argue that independent claim 1 is directed to "operations [that] implement a process that is not shown to be performed by any prior system to automatically analyze a CAD model to identify groups of input features, detect structures in them, and populate a data structure in a specific manner according to the detected structures." App. Br. 24–25.

The Examiner has found that claim 1 is directed to the abstract concept of identifying duplicate patterns in CAD structures and storing the information. Answer 6. We concur with the Examiner. Claim 1 is directed to the abstract concept of storing a data structure associated with a CAD model, by using algorithms that initialize a data structure in a model, identify groups of input features, apply a process to the groups of the inputs and populate the data structure according to the process applied to the inputs.

The Supreme Court reiterated the framework set out in *Mayo Collaborative Services, v. Prometheus Labs., Inc.*, 132 S.Ct. 1289 (2012), for “distinguishing patents that claim . . . abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp. Pty. Ltd., v. CLS Bank International*, 134 S.Ct. 2347, 2355 (2014). Assuming that a claim nominally falls within one of the statutory categories of machine, manufacture, process, or composition of matter, the first step in the analysis is to determine if the claim is directed to a law of nature, a natural phenomenon, or an abstract idea (judicial exceptions). If so, the second step is to determine whether any element or combination of elements in the claim is sufficient to transform the nature of the claim into a patent eligible application, that is, to ensure that the claim amounts to significantly more than the judicial exception.

With respect to the first step of the *Alice* analysis, independent method claim 1 is nominally directed to one of the statutory classes of invention, independent claim 8 is directed to a system and claim 15 is directed to a non-transitory computer readable medium. Each of the claims are directed to the concept of storing a data structure associated with a CAD, which Appellants’ Specification describes as providing “the distinct technical advantage of more efficient and uniform processing of such structures.” *See, e.g.*, Para. 75 of Appellants’ Specification. We consider this to be an abstract concept.

Claim 1 recites limitations of receiving a model including an input, idealizing a data structure, identifying groups of input features, applying a process to the feature and populating the data structure. Independent claims 8 and 15 recite similar steps.

Our reviewing court has said that abstract ideas includes “collecting information, including when limited to particular content.” *Elec. Power Grp., LLC v. Alstrom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). Further “merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.” *Id.* at 1354. Here the claims are merely directed to steps of collecting information and performing several algorithms on the information to populate a data structure with the data and thus recites an abstract idea.

Appellants argue that the claimed process provides improvements to the function of the computer and are not drawn to abstract ideas cited in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016). Reply Br. 20–21. We are not persuaded of error by Appellants’ arguments. Appellants’ asserted improvement that it provides “the technical advantage of more efficient and uniform processing of such structures” is merely reciting an illusory and undefined advantage. App. Br. 28 (citing Specification 28 and 75). Further, this improvement is recited in Appellants’ Specification and not the claims, whereas the claims of *Enfish* were in means-plus-function format and the court looked to the specification to define the limits of the claim limitations.

With respect to the second step of the *Alice* analysis, we do not find claims 1, 8, and 15 recite an inventive concept which transforms the abstract algorithm into a patent eligible invention. *See Alice*, 134 S. Ct. at 2357 (“[W]e must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application. A claim that recites an abstract idea

must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” (internal citations omitted)). Each of claims 1, 8, and 15, recites a data processing system and storing the data structure as associated with the CAD model. Thus, the claims generically recite a data processing system, computing equipment, that performs the recited algorithm and which is insufficient to transform the nature of the claim into a patent-eligible application. “[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.” *FairWarning IP, LLC, v. Iatric Sys., Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (citing *DDR Holdings, LLC, v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014)). Thus, we agree with the Examiner that independent claims 1, 8, and 15, and the claims which depend thereupon, are not directed to patent-eligible subject matter.

Rejection of Claims 1 through 23 under 35 U.S.C. § 102(a)(1)

Appellants argue the Examiner errs in finding that Shikhare teaches populating a data structure according to the detected structures, wherein the data structure includes leaf nodes representing input features, intermediate nodes representing structures of the input features, and a top-level node identifying a top-level structure of intermediate-node structures discovered in the CAD mode, as recited in each of independent claims 1, 8, and 15.

The Examiner responds to Appellants’ arguments and finds that Shikhare teaches detecting nested repeating patterns at different levels of granularity, i.e., a hierarchy. Answer 23. Although we concur with the

Examiner that Shikhare teaches detecting patterns in a hierarchy, we do not find that this meets the claimed data structure of leaf nodes representing input features, intermediate nodes representing input features, and top-level node identifying top level structure. Accordingly, we do not sustain the Examiner's rejection of independent claims 1, 8, and 15, and the claims which depend upon them, under § 102(a)(1).

DECISION

The decision of the Examiner to reject claims 1 through 23 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED